

What is claimed is:

1. A bench style seating assembly, comprising:
 - a beam;
 - at least one base supporting said beam in a substantially horizontal position;
 - at least one seat back assembly fixedly secured to said beam;
 - a plurality of seat connection mechanisms each comprising a connector support extending forward in a substantially horizontal position; and
 - a plurality of seat bottom assemblies pivotably secured to said beam by said plurality of seat connection mechanisms, each of said plurality of seat bottom assemblies being separately pivotable about an axis through the connector support of said plurality of seat connection mechanisms.
2. The seating assembly of claim 1, wherein, said beam is part of a beam assembly comprising at least one beam having at least one of a first and second beam standard lengths.
3. The seating assembly of claim 2, wherein, the beam assembly further comprises at least one beam having at least one of the first and second beam standard lengths joined end to end with at least one other beam having at least one of the first and second beam standard lengths.

4. The seating assembly of claim 3, wherein, the beam assembly further comprises at least one beam having at least one of the first and second beam standard lengths joined end to end with a beam extension having a beam custom length, said beam custom length less than at least one of the first and second beam standard lengths, so as to allow the seating assembly to be substantially any length without requiring customization all beams.
5. The seating assembly of claim 3, wherein, the at least first and second standard beam lengths are cut into cut lengths.
6. The seating assembly of claim 5, wherein, the at least first and second standard beam lengths are chosen based on an optimal seat bottom width such that combinations of the at least first and second beam lengths and cut portions of the at least first and second standard beam lengths reach a predetermined bench length without beam waste.
7. The seating assembly of claim 6, wherein, each beam length of the combination of the of the at least first and second beam lengths and the appropriate number of cut lengths of the at least first and second standard beam lengths is trimmed such that the beam assembly reaches the predetermined length with minimized beam waste when a requested seat bottom width is not the optimal seat bottom width.

8. The seating assembly of claim 6, wherein, the beam assembly further comprises at least a third standard beam length.

9. The seating assembly of claim 1, wherein, at least one of the plurality of seat bottom assemblies has a width different than a width of another of the plurality of seat bottom assemblies.

10. The seating assembly of claim 9, wherein, a width of each of the plurality of seat bottom assemblies is selected from a group of less than ten standard widths so as to allow the seating assembly to be substantially of any length without requiring customization of widths of the plurality of seat bottom assemblies.

11. The seating assembly of claim 9, wherein, the at least one seat back assembly comprises a plurality of seat back assemblies, and wherein, at least one of the plurality of seat back assemblies has a width different than a width of another of the plurality of seat back assemblies.

12. The seating assembly of claim 11, wherein each of the plurality of seat back assemblies is substantially the same width as a corresponding one of the plurality of seat bottom assemblies.

13. The seating assembly of claim 11, wherein, a width of each of the plurality of seat back assemblies is selected from a group of less than ten standard widths so as to allow the seating assembly to be substantially of any length without requiring customization of widths of the plurality of seat back assemblies.

14. The seating assembly of claim 1, wherein, said at least one base is fastened in place.

15. The seating assembly of claim 1, wherein, said at least one base comprises a plurality of bases and wherein, the number of bases comprising the plurality of bases is less than the number of seat bottom assemblies comprising the plurality of seat bottom assemblies.

16. The seating assembly of claim 1, wherein, the seat back assembly comprises a single continuous back member.

17. The seating assembly of claim 1, wherein, the at least one base is positioned substantially beneath at least one seat bottom assembly.

18. The seating assembly of claim 1, wherein, the at least one base is fixedly secured to said beam with a U shaped bracket comprising a plate

fastened to the U shaped bracket such that the beam is surrounded by the bracket and plate.

19. The seating assembly of claim 1, wherein, said plurality of seat connection mechanism are configured such that said plurality of seat bottom assemblies are gravity lifted.

20. The seating assembly of claim 19, wherein, each of said plurality of seat connection mechanisms comprises

- a saddle bracket portion comprising an inner pivot channel;
- a pin portion comprising a pin protruding therefrom; and

wherein, when said pin portion is angled with respect to said saddle bracket portion at an insertion angle, the pin is insertable into and removable from the inner pivot channel, and such that when said pin portion is angled with respect to said saddle bracket portion at an angle other than the insertion angle, the pin is retained in the inner pivot channel.

21. The seating assembly of claim 1, further comprising an end attached to either end of the beam to define a length of the seating assembly.

22. The seating assembly of claim 1, wherein, said plurality of seat bottom assemblies further comprise removable seat covers.

23. The seating assembly of claim 1, wherein, said plurality of seat back assemblies further comprise removable back pads.

24. A bench style seating assembly, comprising:

a beam assembly comprising at least one beam having at least one of a first and second beam standard lengths;

at least one base supporting said beam assembly in a substantially horizontal position;

at least one seat back assembly fixedly secured to said beam assembly;

a plurality of seat connection mechanisms each comprising a connector support extending forward in a substantially horizontal position;

a plurality of seat bottom assemblies pivotably secured to said beam assembly by said plurality of seat connection mechanisms, each of said plurality of seat bottom assemblies being separately pivotable about an axis through the connector support of said plurality of seat connection mechanisms;

wherein, at least one of the plurality of seat bottom assemblies has a width different than a width of another of the plurality of seat bottom assemblies; and

wherein, a width of each of the plurality of seat bottom assemblies is selected from a group of less than ten standard widths so as to allow the

seating assembly to be substantially of any length without requiring customization of widths of the plurality of seat bottom assemblies.

25. The seating assembly of claim 24, wherein, the beam assembly further comprises at least one beam having at least one of the first and second beam standard lengths joined end to end with at least one other beam having at least one of the first and second beam standard lengths.

26. The seating assembly of claim 25, wherein, the beam assembly further comprises at least one beam having at least one of the first and second beam standard lengths joined end to end with a beam extension having a beam custom length, said beam custom length less than at least one of the first and second beam standard lengths, so as to allow the seating assembly to be substantially any length without requiring customization all beams.

27. The seating assembly of claim 24, wherein, the at least one seat back assembly comprises a plurality of seat back assemblies, and wherein, at least one of the plurality of seat back assemblies has a width different than a width of another of the plurality of seat back assemblies.

28. The seating assembly of claim 25, wherein each of the plurality of seat back assemblies is substantially the same width as a corresponding one of the plurality of seat bottom assemblies.

29. The seating assembly of claim 25, wherein, a width of each of the plurality of seat back assemblies is selected from a group of less than ten standard widths so as to allow the seating assembly to be substantially of any length without requiring customization of widths of the plurality of seat back assemblies.

30. The seating assembly of claim 24, wherein, said at least one base is fastened in place.

31. The seating assembly of claim 24, wherein, said at least one base comprises a plurality of bases and wherein, the number of bases comprising the plurality of bases is less than the number of seat bottom assemblies comprising the plurality of seat bottom assemblies.

32. The seating assembly of claim 24, wherein, said plurality of seat connection mechanism are configured such that said plurality of seat bottom assemblies are gravity lifted.

33. The seating assembly of claim 32, wherein, each of said plurality of seat connection mechanisms comprises

- a saddle bracket portion comprising an inner pivot channel;
- a pin portion comprising a pin protruding therefrom; and

wherein, when said pin portion is angled with respect to said saddle bracket portion at an insertion angle, the pin is insertable into and removable from the inner pivot channel, and such that when said pin portion is angled with respect to said saddle bracket portion at an angle other than the insertion angle, the pin is retained in the inner pivot channel.

34. The seating assembly of claim 24, further comprising an end attached to either end of the beam assembly to define a length of the seating assembly.

35. A method of assembling a bench style seating assembly, comprising the steps of:

- determining a desired length of the seating assembly;

- selecting a beam;

- supporting said beam in a substantially horizontal position on at least one base;

- fixing at least one seat back assembly to the beam;

- fixing a plurality of seat connector mechanisms to the beam;

- selecting a width of each of a plurality of seat bottom assemblies so as to cause the seating assembly to have the desired length, a selected width of at least one of the plurality of seat bottom assemblies being different than a selected width of at least one other of the plurality of seat bottom assemblies;
- and

attaching the plurality of seat bottom assemblies pivotably to the beam by the plurality of seat connection mechanisms.

36. The method described in claim 35, wherein, said step of selecting a beam comprises the steps of:

selecting at least one beam of at least one of a first and second beam standard lengths;

joining end to end an appropriate number of beams of at least one of the first and second beam standard lengths so that a beam assembly is within at least one of the first and second beam standard lengths of the desired length; and

joining end to end a beam extension of a beam custom length, said beam custom length less than at least one of the first and second beam standard lengths, with at least one beam of at least one of the first and second beam standard lengths so as to cause the seating assembly to have the desired length without requiring customization all beams.

37. The method described in claim 35, wherein, said step of selecting a beam comprises the steps of:

selecting from an inventory of at least a first and second standard beam lengths an appropriate number of beams;

cutting an appropriate number of at least the first and second standard beam lengths based on an optimal seat bottom width such that a combination

of the at least first and second beam lengths and the appropriate number of cut lengths of the at least first and second standard beam lengths reach a predetermined bench length without beam waste; and

joining end to end an appropriate number of the at least a first and second standard beams lengths and the cut lengths so that a beam assembly is the predetermined length without beam waste.

38. The method described in claim 37, wherein, each beam length of the combination of the at least first and second beam lengths and the appropriate number of cut lengths of the at least first and second standard beam lengths is trimmed such that the beam assembly reaches the predetermined length with minimized beam waste when a requested seat bottom width is not the optimal seat bottom width.

39. The method described in claim 35, wherein the width of each of the plurality of seat bottom assemblies is selected from a group of less than ten standard widths so as to cause the seating assembly to have the desired length without requiring customization of the widths of the plurality of seat bottom assemblies.

40. The method described in claim 35, wherein, said step of fixing at least one seat back assembly to the beam comprises the steps of:

selecting a width of each of a plurality of seat back assemblies so as to cause the seating assembly to have the desired length, a selected width of at least one of the plurality of seat back assemblies being different than a selected width of at least one other of the plurality of seat back assemblies; and

fixing the plurality of seat back assemblies to the beam.

41. The method described in claim 40, wherein the width of each of the plurality of seat back assemblies is selected from a group of less than ten standard widths so as to cause the seating assembly to have the desired length without requiring customization of the widths of the plurality of seat back assemblies.

42. The method described in claim 35, wherein, the width of each of the plurality of seat back assemblies is selected to correspond to a width of each of the plurality of seat bottom assemblies.

43. The method described in claim 35, wherein, each of the plurality of seat bottom assemblies is separately pivotable.

44. The method described in claim 35, wherein, said step of supporting said beam in a substantially horizontal position on at least one base further

comprises positioning the at least one base substantially beneath at least one seat bottom assembly.

45. The method described in claim 35, further comprising the step of securing the at least one base to a floor.

46. The method described in claim 35, wherein, said step of fixing at least one seat back assembly to the beam comprises the step of fixing a seat back assembly, which is a single continuous back member to the beam.

47. The method described in claim 35, further comprising the step of configuring the plurality of seat connection mechanisms such that the plurality of seat bottom assemblies are gravity lifted.

48. The method described in claim 35, further comprising the step of installing an end on either end of the seating assembly to define the length of the seat assembly.

49. A method of assembling a bench style seating assembly, comprising the steps of:

determining a desired length of the seating assembly;

selecting a beam;

supporting said beam in a substantially horizontal position on at least one base;

fixing at least one seat back assembly to the beam;

fixing a plurality of seat connector mechanisms to the beam;

selecting a width of each of a plurality of seat bottom assemblies so as to cause the seating assembly to have the desired length, from a group of less than ten standard widths so as to cause the seating assembly to have the desired length without requiring customization of the widths of the plurality of seat bottom assemblies; and

attaching the plurality of seat bottom assemblies pivotably to the beam by the plurality of seat connection mechanisms.

50. The method described in claim 49, wherein, said step of selecting a beam comprises the steps of:

selecting at least one beam of at least one of a first and second beam standard lengths;

joining end to end an appropriate number of beams of at least one of the first and second beam standard lengths so that a beam assembly is within at least one of the first and second beam standard lengths of the desired length; and

joining end to end a beam extension of a beam custom length, said beam custom length less than at least one of the first and second beam standard lengths, with at least one beam of at least one of the first and second beam standard lengths so as to cause the seating assembly to have the desired length without requiring customization all beams.

51. The method described in claim 49, wherein, said step of selecting a beam comprises the steps of:

selecting from an inventory of at least a first and second standard beam lengths an appropriate number of beams;

cutting an appropriate number of at least the first and second standard beam lengths based on an optimal seat bottom width such that a combination of the at least first and second beam lengths and the appropriate number of cut lengths of the at least first and second standard beam lengths reach a predetermined bench length without beam waste; and

joining end to end an appropriate number of the at least a first and second standard beams lengths and the cut lengths so that a beam assembly is the predetermined length without beam waste.

52. The method described in claim 51, wherein, each beam length of the combination of the at least first and second beam lengths and the appropriate number of cut lengths of the at least first and second standard beam lengths is trimmed such that the beam assembly reaches the predetermined length with minimized beam waste when a requested seat bottom width is not the optimal seat bottom width.

53. The method described in claim 49, wherein the width of each of the plurality of seat bottom assemblies is selected, a selected width of at least one of the plurality of seat bottom assemblies being different than a selected width of at least one other of the plurality of seat bottom assemblies.

54. The method described in claim 49, wherein, said step of fixing at least one seat back assembly to the beam comprises the steps of:

selecting a width of each of a plurality of seat back assemblies so as to cause the seating assembly to have the desired length, a selected width of at least one of the plurality of seat back assemblies being different than a selected width of at least one other of the plurality of seat back assemblies;
and

fixing the plurality of seat back assemblies to the beam.

55. The method described in claim 54, wherein the width of each of the plurality of seat back assemblies is selected from a group of less than ten standard widths so as to cause the seating assembly to have the desired length without requiring customization of the widths of the plurality of seat back assemblies.

56. The method described in claim 49, wherein, the width of each of the plurality of seat back assemblies is selected to correspond to a width of each of the plurality of seat bottom assemblies.

57. The method described in claim 49, wherein, said step of supporting said beam in a substantially horizontal position on at least one base further comprises positioning the at least one base substantially beneath at least one seat bottom assembly.

58. The method described in claim 49, wherein, each of the plurality of seat bottom assemblies is separately pivotable.

59. A bench style seating assembly, comprising:

- a beam having a rectangular cross section of a known thickness;

- at least one base comprising a U shaped bracket, an opening of the U shaped bracket corresponding to the thickness of said beam, and supporting said beam in a substantially horizontal position such that said beam rests within the U shaped bracket and remains within the U shaped bracket when subjected to a torque;

- at least one seat back assembly comprising at least one U shaped bracket, an opening of the U shaped bracket corresponding to the thickness of said beam, positioned over said beam such that the at least one seat back is fixedly secured to said beam and the beam assembly remains within the opening of the at least one U shaped bracket when subjected to a torque;

- a plurality of seat connection mechanisms each comprising a connector support extending forward in a substantially horizontal position and

a U shaped bracket, an opening of the U shaped bracket corresponding to the thickness of said beam, positioned over said beam such that the plurality of seat connection mechanisms are fixedly secured to said beam and the beam remains within the opening of the U shaped brackets when subjected to a torque; and

a plurality of seat bottom assemblies pivotably secured to said beam by said plurality of seat connection mechanisms, each of said plurality of seat bottom assemblies being separately pivotable about an axis through the connector support of said plurality of seat connection mechanisms.

60. The seating assembly of claim 59, wherein, said beam is part of a beam assembly comprising at least one beam having at least one of a first and second beam standard lengths.

61. The seating assembly of claim 60, wherein, the beam assembly further comprises at least one beam having at least one of the first and second beam standard lengths joined end to end with at least one other beam having at least one of the first and second beam standard lengths.

62. The seating assembly of claim 61, wherein, the beam assembly further comprises at least one beam having at least one of the first and second beam standard lengths joined end to end with a beam extension having a beam custom length, said beam custom length less than at least one of the first and

second beam standard lengths, so as to allow the seating assembly to be substantially any length without requiring customization all beams.

63 The seating assembly of claim 59, wherein, at least one of the plurality of seat bottom assemblies has a width different than a width of another of the plurality of seat bottom assemblies.

64. The seating assembly of claim 63, wherein, a width of each of the plurality of seat bottom assemblies is selected from a group of less than ten standard widths so as to allow the seating assembly to be substantially of any length without requiring customization of widths of the plurality of seat bottom assemblies.

65. The seating assembly of claim 63 wherein, the at least one seat back assembly comprises a plurality of seat back assemblies.

66. The seating assembly of claim 65 wherein, each seat back assembly comprises a groove along an edge that is adjacent to another seat back assembly such that at least one back connector insert is positioned within the groove.

67. The seating assembly of claim 65, wherein, at least one of the plurality of seat back assemblies has a width different than a width of another of the plurality of seat back assemblies.

68. The seating assembly of claim 65, wherein each of the plurality of seat back assemblies is substantially the same width as a corresponding one of the plurality of seat bottom assemblies.

69. The seating assembly of claim 65, wherein, a width of each of the plurality of seat back assemblies is selected from a group of less than ten standard widths so as to allow the seating assembly to be substantially of any length without requiring customization of widths of the plurality of seat back assemblies.

70. The seating assembly of claim 59, wherein, said at least one base is secured to a floor.

71. The seating assembly of claim 59, wherein, said at least one base comprises a plurality of bases and wherein, the number of bases comprising the plurality of bases is less than the number of seat bottom assemblies comprising the plurality of seat bottom assemblies.

72. The seating assembly of claim 59, wherein, the seat back assembly comprises a single continuous back member.

73. The seating assembly of claim 59, wherein, the at least one base is positioned substantially beneath at least one seat bottom assembly.

74. The seating assembly of claim 59, wherein, the U shaped bracket are fixedly secured to said beam by a plate fastened to the U shaped bracket such that the beam is surrounded by the bracket and plate.

75. The seating assembly of claim 74, wherein, said plate is fastened to the U shaped bracket with screws such that no holes are made in said beam.

76. The seating assembly of claim 59, wherein, said plurality of seat connection mechanisms are configured such that said plurality of seat bottom assemblies are gravity lifted.

77. The seating assembly of claim 76, wherein, each said connector support comprises:

- a saddle bracket portion comprising an inner pivot channel;

- a pin portion comprising a pin protruding therefrom; and

- wherein, when said pin portion is angled with respect to said saddle bracket portion at an insertion angle, the pin is insertable into and removable

from the inner pivot channel, and such that when said pin portion is angled with respect to said saddle bracket portion⁺ at an angle other than the insertion angle, the pin is retained in the inner pivot channel.